Space Weather Forecast

Issued on Monday, 17 October 2022 at 13:02 Local

This forecast provides a four day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

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Space Weather Forecast Headline: No significant activity.

Analysis of Space Weather Activity over past 24 hours

Solar Activity: Solar activity has been low over the past 24 hours, with occasional low level common-class X-ray flares evident. There are currently four numbered regions on the visible disc, with all of these presenting as relatively straightforward magnetically bipolar regions. The largest and most complex group is located in the southwest quadrant, however overall areal growth appears to have stalled. Other numbered groups showed either little change or decay. A few small spots have recently emerged in the southeast quadrant.

There remain numerous 'filaments' (arcs of plasma) on the facing side of the Sun at present, and while some of these were mobile in the period, none obviously lifted off, and no Earth directed Coronal Mass Ejections (CMEs) were in evidence on available satellite imagery at the time of writing.

Solar Wind / Geomagnetic Activity: The solar wind showed ongoing connection to the fast wind of a coronal hole.

The solar wind speed showed a roughly level tendency within Elevated levels. The number of particles in the solar wind and their associated magnetic field were both level, the former slightly elevated above long-term background. Geomagnetic activity was Quiet to Active (Kp 0 to 4).

Energetic Particles / Solar Radiation: No solar radiation storms were observed.

Four-Day Space Weather Forecast Summary

Solar Activity: Solar activity is forecast to be low or very low, barring any significant sunspot development.

Solar Wind / Geomagnetic Activity: There are currently no Earth-directed CMEs, and the only fast wind expected in the period is already in course.

Geomagnetic activity will most likely remain below Minor Storm G1 throughout, with an early peak slight chance falling to become reliably quiet from midweek UTC as Earth exits a fast wind for a slow regime.

Energetic Particles / Solar Radiation: No solar radiation storms are expected.

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Met Office Space Weather Forecast

Geomagnetic Storms:

Geo-Magnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	G1 to G2	No	5	1	1	1
Strong	G3	No	1	1	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X Ray Flares:

X Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	R1-R2 M Class	No	5	5	1	1
Very Active	R3 to R5 X	No	1	1	1	1

Solar Radiation Storms - (High Energy Protons):

Radiation Storms Probability (Exceedance)	Level (cm^{-2} sr^{-1} s^{-1})	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	≥ S1	No	1	1	1	1
Very Active	≥ S3 *	No	1	1	1	1

* S3 ≥ 10 MeV ≥ 1000 pfu and / or ≥ 50 MeV ≥ 10 pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)

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